**Institute of Technology and Science Pilani**

**Birla 1st Sem 2012-13 CS C351 Theory of computation**

**Take Home Evaluated Tutorial 6 Max Marks 4 Date of Posting 17 Sep**

**Date of Submission 18th Sep**

**Submit a handwritten solution on A4 paper. At the top left hand corner, write your ID and name. On the top right corner write your section number and instructor’s name. Submit to your instructor during the tutorial *only.* At the top of the sheet please write the statement ‘*I have worked out this tutorial with my own effort’* and sign underneath. Write only those answers for which marks are indicated, with the correct question number.**

Q1. Consider the CFG

S→ A | B

A → a | aA | bAA | AAb | AbA

B → b | b B | aBB | BBa | BaB

1. Generate two strings with length at greater than or equal to 10 using the grammar given above, with S as the start symbol. Write out the derivations (left most)
2. Identify the language – give the precise definition.
3. For one string, draw the parse tree.

Q2. Give a CFG that generates non-palindromes of odd length over {a,b,c} .

Q3. Show that the grammar:

S→aSb | aaSb |ε

Is ambiguous by finding two distinct parse trees for some string.